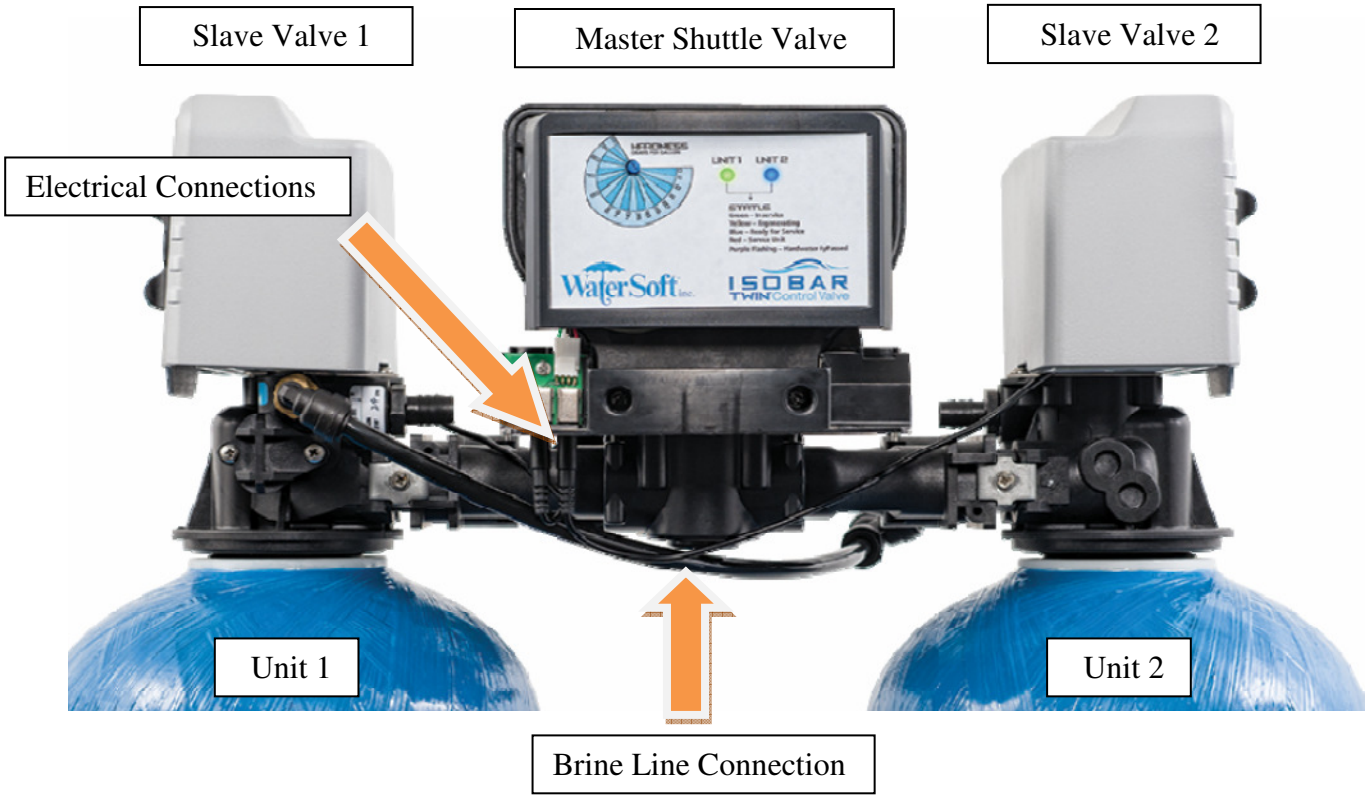
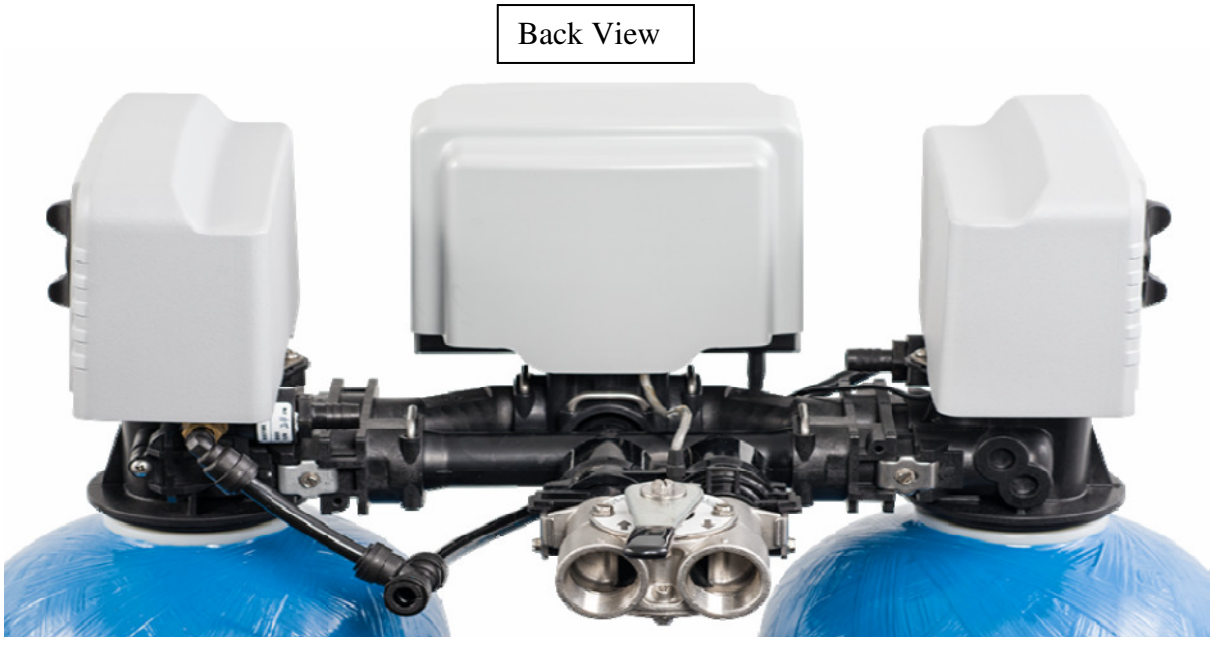
Isobar Twin Softener

User Manual

System Overview





System Overview Cont.

- ***Unit 1(left)*** & ***Unit 2 (right)*** will be labeled on the back of each control valve and should be installed in this order for soft water regeneration & refill.
- Connect ***Master Shuttle Valve*** by pushing the manifold onto the back of each unit and fasten with clips provided. Check that ***Meter Cable*** is firmly inserted into the center of the electronic meter located between ***Master Shuttle Valve*** manifold and bypass valve.
- Insert ***Unit 1*** and ***Unit 2*** electrical cords into ***Master Shuttle Valve*** receptacles labeled 1 & 2. These are located under the front cover plate on the lower left side of the ***Master Shuttle Valve*** (See ***Electrical Connections*** for details.)
- Connect brine line by pushing the black tubing into the 3/8" Tube Lok tee as shown. ***Note:*** To prevent air leaks, make certain that two distinct resistance points are felt when pushing the tubing into the Tube Lok tee. This will be approximately 3/8".
- For drain line and plumbing connections refer to your installation manual provided.

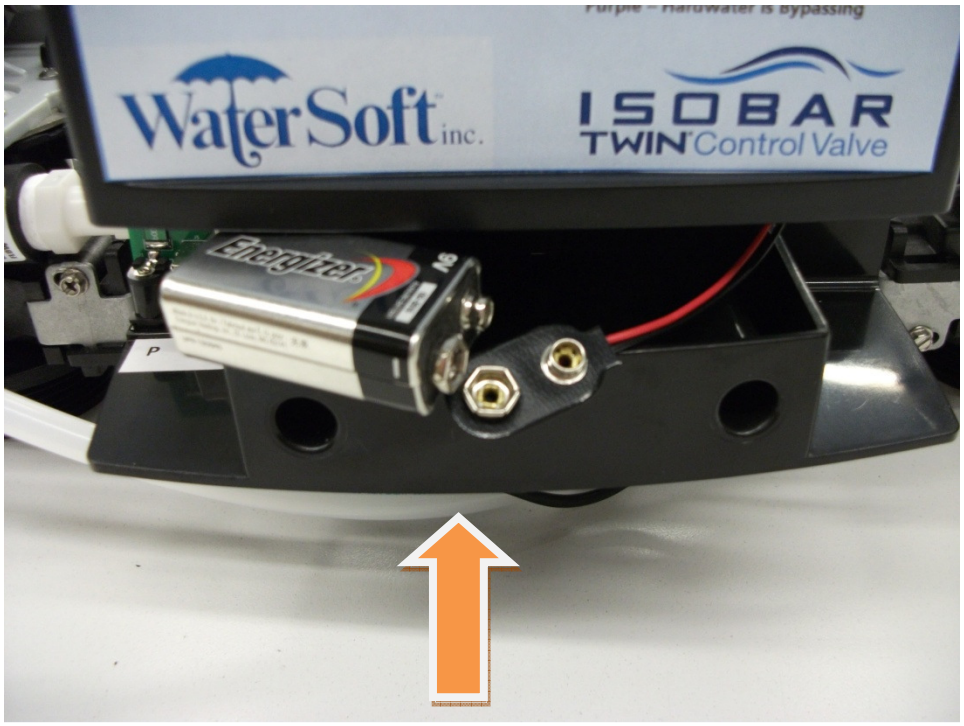
Master Shuttle Valve

- The ***Hardness Pointer*** should be set for the ***compensated hardness***, calculated in grains per gallon (gpg). This setting determines how often the system will need to regenerate. ***NOTE:*** To calculate ***compensated hardness*** multiply the ppm (mg/l) of iron (Fe) & manganese (Mn) by "4" & add to the hardness number in gpg. If your hardness number is calculated in mg/l or ppm, simply divide this number by **17.1** to convert it to grains per gallon.
- The ***Green*** status light indicates which unit is in service (currently being used to soften the water) and the ***Blue*** status light indicates which unit is in Standby (waiting its turn to be in service). They will alternate between each other and regenerate automatically based on water usage. This provides uninterrupted soft water to the home.
- Once the unit in service has depleted its capacity, the ***Master Shuttle Valve*** will switch to the unit that is in standby. After it switches tanks, the status light for the unit that was in standby will turn from ***Blue*** to ***Green*** indicating it is the unit now in service. The status light for the unit that was in service will turn from ***Green*** to ***Yellow***, indicating that unit is in a regeneration cycle. Once the ***Yellow*** unit is finished regenerating, it will then turn ***Blue*** indicating it is in standby.
- When a unit is regenerating and the end user turns the ***Slave Valve*** dial manually through the steps, the ***Master Shuttle Valve*** circuit board will not count that unit as being regenerated properly. It ***WILL*** force the unit to regenerate again to make sure that the unit has completed all of the required steps for the proper amount of time. In this case the status light will continue to be ***Yellow*** until the full regeneration completes. A full regeneration (1 full revolution of the indicator dial) takes 2 hours and 45 minutes.

Battery Backup (Uses a Standard 9-Volt Alkaline Battery)

- Installing the Battery
  - To install the battery, the slide cover of the Master Shuttle Valve must be removed.
  - Next connect the battery to the 9 volt battery connector located just beneath the ***Master Shuttle Valve*** circuit board control panel. Place the battery in the plastic tray.
  - Replace the Master Shuttle Valve cover.
- Features of Battery Backup
  - The battery backup allows the ***Master Shuttle Valve*** motor to complete running to the next position if a power fail occurs during a unit transition.
  - The battery backup will keep the electronic meter active to count down gallons if water is used during a power failure.

- *If power fails during regeneration of Unit 1 or Unit 2, the respective slave valve will act like a standard electromechanical control valve—when a power failure occurs, the unit stops at its current point in the regeneration and then restarts at that point when the power is restored. If water flow is detected through the drain line, it is recommended that the unit be bypassed.*



Battery Location

Starting an Immediate Regeneration Cycle

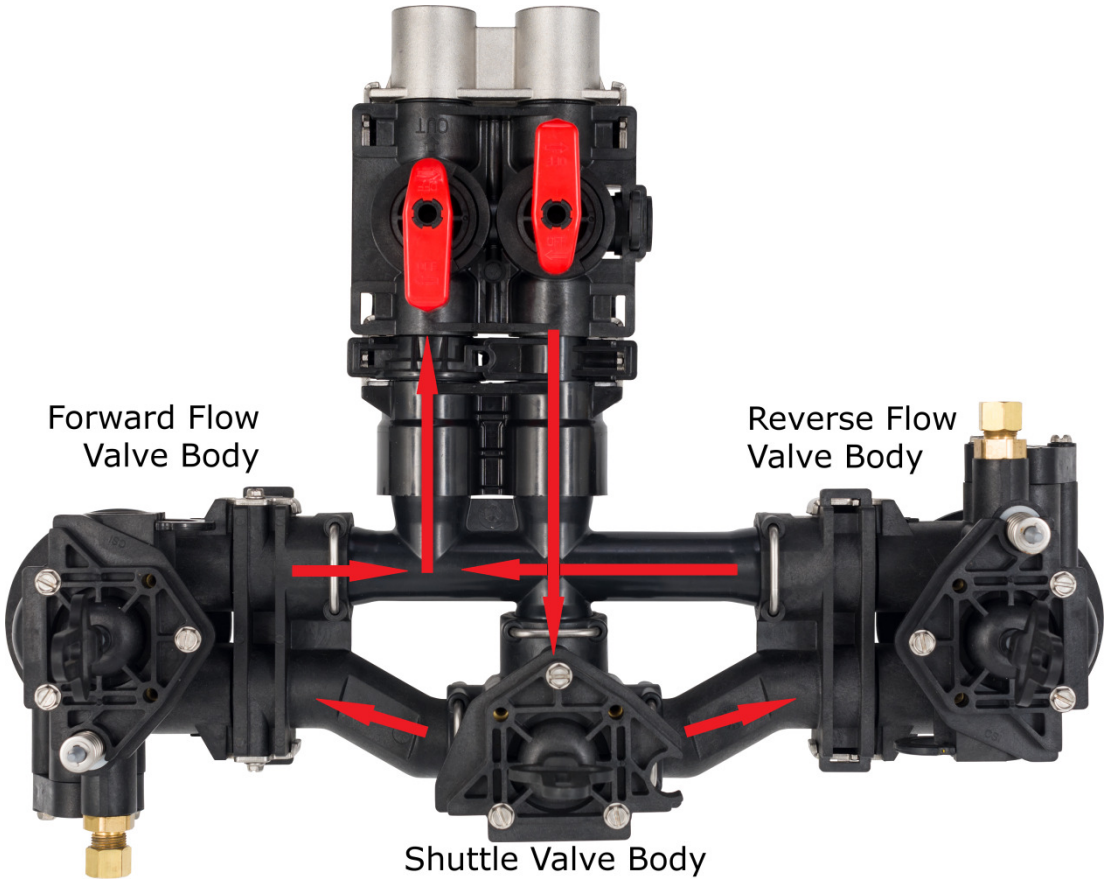
- To Start an ***Immediate Extra Cycle*** → Turn the Slave Valve dial clockwise to ***"Regen"*** for the tank that is in service (***Green*** status light)
- This units status light will turn ***Yellow*** and start to regenerate. When finished, the status light will turn ***Blue***.

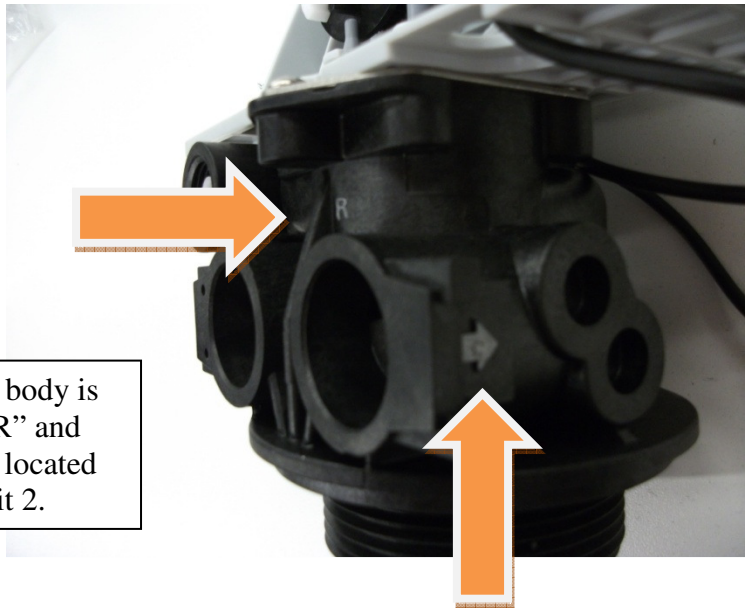
Regeneration Cycle Indications

- The Softener Regeneration Cycle steps can be viewed by looking at the position indicator slot on the respective softener Slave Valve dial.

    - Step 1: Rinse
    - Step 2: Backwash
    - Step 3: Brine + Rinse
    - Step 4: Rapid Rinse
    - Step 5: Settle Rinse
    - Step 6: Brine Refill
    - Step 7: In Serv (Service)

Basic Operation





The Reverse flow body is marked with an “R” and also with a “Star” located on the inlet of Unit 2.

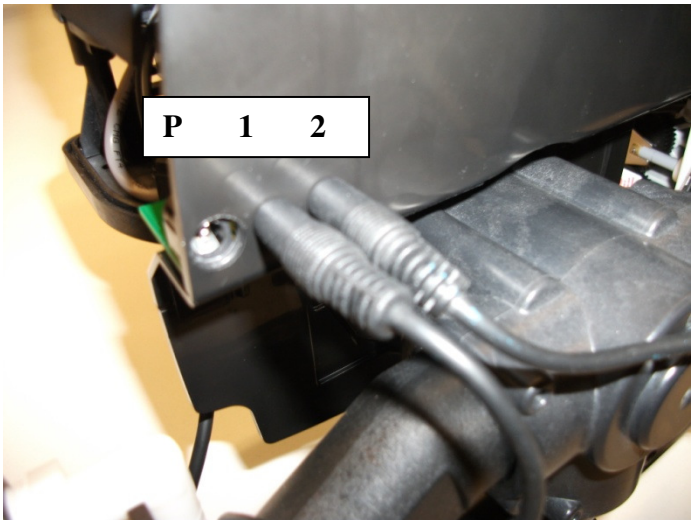
Electrical Connections

P = Power Supply Connection

1 = Unit 1 Connection

2 = Unit 2 Connection

Master Shuttle Valve



Final Set-Up

When Plumbing Installation is Complete and Power is OFF:

1) Make certain that bypass valve is in bypass position & open a soft water faucet to evacuate air from plumbing lines.
2) Add water a few inches above the salt grid in the brine tank. Manually step Unit 1 & Unit 2 to ***Backwash*** position. Crack open the bypass valve just enough to allow a very low flow into the units and allow BOTH to evacuate air. Once air is depleted, slowly open bypass valve and let run at full flow to drain for 2-3 minutes.
3) Manually select ***Service (In Serv)*** position for both units
4) For ***Unit 1 only***, select ***Brine/Rinse*** position and draw water from the brine tank until it stops. This will be approximately 3" from the bottom. ***Note*****: If water is not being drawn from the brine tank, check all brine line connections for air leaks.**
5) For ***Unit 1 only***, select ***Rapid Rinse*** position & let run to drain for 2-3 minutes.
6) For ***Unit 1 only***, select ***Brine Refill*** position & fill brine tank until water level is just above the grid plate.
7) For ***Unit 1 only*** select ***Service (In Serv)*** position.
8) Repeat steps **4 – 7** for ***Unit 2***.
9) Plug Power Supply in ***"P"*** port.
10) Add Softener Sanitizer disinfectant packet (included) to brine tank. In lieu of Softener Sanitizer, 2-3 oz. of standard unscented chlorine bleach can be used. ***Caution:*** **More bleach than 2-3 oz. can damage the softener resin!!!**
11) Manually step unit in service (***Green*** status light) to the regeneration position ***(Regen)***.
12) Verify the ***Master Shuttle Valve*** switches to the stand-by tank (***Blue*** status light changes to ***Green*** for unit that was in stand-by & ***Green*** to ***Yellow*** for unit that was in service).

Final Set-Up (Cont.)

13) For the unit that is now in ***Service*** (***Green*** status light), fully rotate Slave Valve dial clockwise 360° back to ***Service (InServ)*** position. ***Note:*** After unit in regeneration completes the cycle, the unit in service will immediately begin a full regeneration (This will take approximately 5 ½ hours for both units to complete)
14) Open faucet & verify ***Green*** status light is flashing signifying the electronic meter is detecting flow through the unit. ***Note:*** If the ***Green*** Light is NOT flashing, check bypass valve and ensure it is in the service position & the meter cable is firmly inserted into the electronic meter.
15) Fill the brine tank with high quality water softener salt. ***Note***: If softener is treating iron and/or manganese the regular use of resin cleaners or using iron inhibiting salt is recommended .
16) Replace ***Master Shuttle Valve*** cover & check bypass is fully in the service position.

Trouble Shooting

SYMPTOM	PROBABLE CAUSE	CORRECTION
1. Softener fails to regenerate automatically	Power supply plugged into intermittent or dead power source.	Connect to constant power source
	Disconnected meter cable	Reconnect cable
	Improper Hardness input	Reset Hardness input
	Defective power supply	Replace power supply
	Defective circuit board or meter	Call dealer, Replace or repair
	Defective drive motor	Replace motor.
2. Loss of capacity	Increase raw water hardness Brine concentration and/or quantity	Reset unit to the new capacity. Keep brine tank full of salt at all times. Clean it yearly. Salt may be bridged. If using a salt grid pate, ensure refill water is over it.
	Resin fouling	Call dealer, find out how to confirm it. Clean the resin and prevent future fouling.
	Poor distribution, Channeling (uneven bed surface)	Call dealer. Check distributors and backwash flow.
	Internal valve leak	Call dealer. Replace spacers, seals and/or piston.
	Resin age	Call dealer. Check for resin oxidation caused by chlorine. Mushy resin.
	Resin loss	Call dealer. Check for correct bed depth. Broken distributors. Air or gas in bed: Well gas eliminator. Loose brine line.
3. Poor water quality	Check items listed in #1 & #2	
	Bypass valve open	Close by-pass valve
	Channeling	Check for too slow or high service flow. Check for media fouling.
4. High salt usage	High salt setting	Adjust salt setting on back of valve.
	Excessive water in brine tank	Check brine line connections for air leak and injection assembly.
	Constant flow through the unit	Indicates plumbing leak (i.e. toilet tank)
	Improperly set hardness	Reset Compensated Hardness

Trouble Shooting

SYMPTOM	PROBABLE CAUSE	CORRECTION
5. Loss of water pressure	Scaling/fouling of inlet pipe	Clean or replace pipeline. Pre-treat to prevent
	Fouled resin	Clean resin. Pretreat to prevent
	Improper backwash	Too many resin fines and/or sediment. Call dealer, reset backwash flow rate, and/or adjust
6. Excessive water in brine tank and/or salty water to service	Plugged drain line	Check flow to drain. Clean flow control
	Dirty or damaged brine valve	Clean or replace brine valve
	Plugged injector	Clean injector and replace screen
	Low inlet pressure	Increase pressure to allow injector to perform properly. (20 psig minimum)
	Excessive brine refill cycle time	Reset brine refill cycle time
7. Softener fails to use salt	Check items listed in #1	
	Improper control valve programming	Check and reset programming
	Plugged/restricted drain line	Clean drain line and/or flow control
	Injector is plugged	Clean or replace injector and screen
	No water in brine tank	Check for restriction in BLFC. Ensure safety float is not stuck. Check brine tank for leaks.
	Water pressure is too low	Line pressure must be at least 20 psi.
	Brine line injects air during brine draw	Check brine line for air leaks
	Internal control leak	Call dealer, check piston, seals and spacers for scratches and dents
8. Control cycles continuously	Faulty circuit board	Replace circuit board
9. Continuous flow to drain	Foreign material in control	Call dealer. Clean valve, rebuild unit
	Internal control leak	Same as above
	Valve jammed in backwash, brine, or Rapid rinse position	Same as above
	Motor stopped or jammed	Replace motor

Status Light Error Indications

Orange - Alternately Flashing

- If there is an error on the ***Master Shuttle Valve***, the two unit status lights will alternately flash orange and normal operation will not be able to continue until the error is corrected. To try to recover from this condition, carefully observe what is happening (does the shuttle motor sound like it is running? Is it actually turning the output shaft? How long does it run before it goes into error? If the motor is **NOT** running, unplug power from the unit, disconnect the 9 volt battery (if installed) and then repower it. See if the error returns. If the error does return call your WaterSoft Dealer. ***NOTE***: If the unit is alternately flashing orange lights and the ***Master Shuttle Valve*** **IS** running, the shuttle valve is most likely trying to find the home position. If this is the case, the orange lights should stop flashing within two minutes time and it will **NOT** be necessary to unplug the power.

Red

- There are two things that can cause a unit to have an ***RED*** error. First, if the micro-switch located on the slave valve does not latch in after the circuit board has run the unit for 10 minutes, the softener unit will go into a ***RED*** status light error meaning the motor failed to run or the micro switch failed to open. Second, if the micro-switch does not drop out after approximately 3 hours and 15 minutes, then the electronics assumes that the micro-switch failed closed and sets that unit in ***RED*** error.

Purple

- Purple indicates that both units are in regeneration at the same time. Hard water will pass through to service during this time. To correct this, turn both dials clockwise on the units to ***"In Serv"*** position**.** Both units will regenerate one at a time.

Replacing a Master Shuttle Valve Circuit Board

- After installing a new electronics circuit board in the Master Shuttle Valve, it must be forced to find the home position. To do this, plug everything into the electronics board except for the shuttle valve optical encoder. Do not install the 9 volt battery. Before powering up the system make sure both units are in the service (***"In Serv"***) position. Then power up the system. The unit status light that is ***Green***, rotate its knob clockwise to the regeneration ***("regen")*** position. The Master Shuttle Valve will run but will go into error after a few seconds because the optical encoder is unplugged. Remove power from the unit, plug the encoder in, and repower the board. The shuttle valve will search for the home position.